
Karachi Institute of Economics & Technology College of Computing & Information Sciences

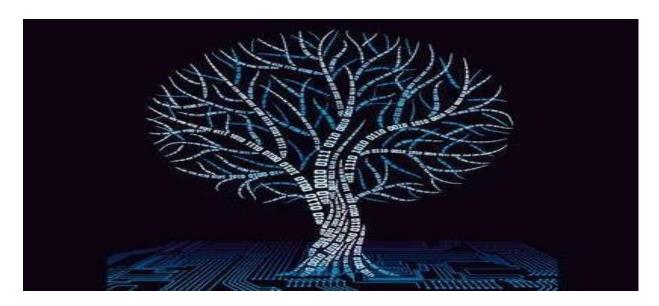


Numerical Computing & Analysis

Assignment

Class ID: Student ID: 7791

Student Name: Muhammad Umair



```
#Muhammad_Umair,7791
def proterm(i, value, x):
     pro = 1;
     for j in range(i):
           pro = pro * (value - x[j]);
     return pro;
def dividedDiffTable(x, y, n):
     for i in range(1, n):
           for j in range(n - i):
                 y[j][i] = ((y[j][i-1] - y[j+1][i-1]) / (x[j] - x[i+j]));
     return y;
def applyFormula(value, x, y, n):
     sum = y[0][0];
     for i in range(1, n):
           sum = sum + (proterm(i, value, x) * y[0][i]);
     return sum;
def printDiffTable(y, n):
```

```
for i in range(n):
            for j in range(n - i):
                  print(round(y[i][j], 4), "\t", end = " ");
            print("");
n = 5;
y = [[0 for i in range(10)] for j in range(10)];
x = [0, 10, 15, 20, 22.5];
y[0][0] = 0;
y[1][0] = 227.04;
y[2][0] = 362.78;
y[3][0] = 517.35;
y[4][0] = 602.97;
y=dividedDiffTable(x, y, n);
printDiffTable(y, n);
value = 16;
print("\nValue at", value, "is", round(applyFormula(value, x, y, n), 2))
```

Cource	Titla	Numorical	Computing
Course	mue:	Numericai	Compunity

Newton Divided Interpolation

0.0001

0	22.704	0.2963	0.004
227.04	27.148	0.3766	0.0054
362.78	30.914	0.4445	
517.35	34.248		
602.97			

Value at 16 is 392.07